

ASSIGNMENT 5

Textbook Assignment: "Quarry Supervisor," "Crusher Supervisor," "Concrete Batch Plant Supervisor," and "Asphalt Plant Supervisor," pages 5-1 through 8-10.

Learning Objective: Recognize the classifications of pits and quarries and the types of material obtained from them.

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| <p>5-1. In an NMCB, what company is responsible for the management of pit and quarry operations?</p> <ol style="list-style-type: none">1. Alfa2. Bravo3. Charlie4. Headquarters <p>5-2. Pits and quarries are classified based on which of the following factors?</p> <ol style="list-style-type: none">1. Type of material contained within2. Method used to excavate the material contained within3. Method used to process the material taken from4. Each of the above <p>5-3. Which of the following is NOT a primary material obtained from a quarry?</p> <ol style="list-style-type: none">1. Granite2. Slag3. Gneiss4. Quartzite <p>5-4. The crust of the earth consists of rock deposits geologists have classified into what three groups?</p> <ol style="list-style-type: none">1. Sedimentary, igneous, and shale2. Sedimentary, metamorphic, and alluvial3. Igneous, metamorphic, and sedimentary4. Igneous, silica, and brick | <p>5-5. The hardness of a rock is classified according to the resistance the rock has to crushing.</p> <ol style="list-style-type: none">1. True2. False <p>5-6. Aggregates used in construction should be rated within what hardness range?</p> <ol style="list-style-type: none">1. Between 1 to 22. Between 2 to 43. Between 5 to 74. Between 8 to 10 <p>5-7. What term identifies the range and distribution of particle sizes present in, or can be obtained from, a deposit?</p> <ol style="list-style-type: none">1. Sieve analysis2. Material fines3. Breakdown analysis4. Gradation <p>5-8. What type of quarry material is not suitable for concrete aggregate?</p> <ol style="list-style-type: none">1. Granite2. Felsite-Rhyolite3. Basalt4. Gabbro-Diorite <p>5-9. The portion of a soil sample retained on the No. 200 sieve is considered what type of aggregate?</p> <ol style="list-style-type: none">1. Coarse2. Medium3. Small4. Fine |
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5-10. Which of the following factors affect the compaction of soil?

1. Material gradation
2. Moisture content
3. Compaction effort
4. All of the above

5-11. Optimum moisture content is the amount of water in the soil required to obtain maximum density.

1. True
2. False

Learning Objective: Recognize site preparation procedures and the operational processes of a pit or quarry.

5-12. What should you check before burning brush on a proposed pit or quarry site?

1. Weather
2. Type of fire extinguisher
3. Requirement for a smoke permit
4. Requirement for a burn permit

5-13. Overburden should be kept cleared at least how far back from the top of the face of a quarry?

1. 50 feet
2. 40 feet
3. 25 feet
4. 10 feet

5-14. What is the maximum grade for a haul road designed for use by truck operations in a quarry?

1. 5 percent
2. 10 percent
3. 15 percent
4. 20 percent

5-15. A chute loading ramp should be constructed to support a minimum of how many tons of material?

1. 5 tons
2. 10 tons
3. 15 tons
4. 20 tons

5-16. When a pusher-assisted scraper cannot load within 150 feet, you should use what equipment?

1. An additional scraper
2. An extra pusher
3. A ripper tractor
4. A front-end loader

5-17. Which of the following quarries is a type commonly used by the military?

1. Double bench
2. Open faced
3. Triple bench
4. Closed faced

5-18. What factor determines the layout of a quarry where the rock formation is jointed?

1. The method of development
2. The depth of overburden
3. The direction of rock formation
4. The lay of the strata

5-19. In the NCF, what is the recommended bench height in a quarry?

1. 10 feet
2. 15 feet
3. 20 feet
4. 25 feet

5-20. In the NCF, what is the recommended minimum width of a bench?

1. 40 feet
2. 50 feet
3. 60 feet
4. 70 feet

- 5-21. What person is responsible for ensuring operator maintenance is performed on quarry equipment?
1. Operations chief
 2. Maintenance supervisor
 3. Maintenance field crew
 4. Quarry supervisor
- 5-22. What NAVFAC publication provides guidelines for wearfacing equipment parts?
1. P-404
 2. P-433
 3. P-405
 4. P-300
- 5-23. Putting off maintenance to satisfy immediate production demands sets a good precedence and increases the life of the equipment.
1. True
 2. False
- 5-24. What is the NEC of a qualified blaster?
1. 5710
 2. 5709
 3. 5708
 4. 5707
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- Learning Objective: Recognize the principles and methods of crusher operations.
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- 5-25. What command directs the tasking of crusher operations for an NMCB?
1. NAVFACENGCOM
 2. NAVCHAPGRU
 3. COMSECOND/COMTHIRDNCB
 4. COMNCFNCB
- 5-26. The classification of a crusher plant is based on what factor?
1. Capacity output
 2. Weight of crusher unit
 3. Size jaws
 4. Area displacement
- 5-27. What is the function of the heavy-duty apron type of feeder?
1. Feeds material to the secondary unit
 2. Sorts material before feeding the secondary unit
 3. Feeds material to the primary unit
 4. Sorts material before feeding the primary unit
- 5-28. What component of the primary unit prescreens material that is already down to the desired size?
1. Vibrating screens
 2. Apron feeder
 3. Under crusher delivery conveyer
 4. Vibrating grizzly
- 5-29. In a rock crusher, what problem occurs when two rocks interlock and bridge the jaws open?
1. Blocking
 2. Bridging
 3. Choking
 4. Packing
- 5-30. What factor determines the production setting for a dual roll crusher?
1. The shell combination
 2. The speed setting
 3. The spacing between the rolls
 4. The hydroset control pressure
- 5-31. The fineness of the product being produced by a hydrocone crusher is adjusted by what action?
1. By raising or lowering the mantle
 2. By adjusting the feed spout
 3. By controlling the hydroset pressure
 4. By adjusting the concave ring

5-32.	Material from the hydrocone crusher is recirculated to the top screen by what components?		<hr/> Learning Objective: Recognize crusher supervisor responsibilities for developing the layout and erection of a crusher plant. <hr/>
	1. The return conveyer and the revolving elevator wheel 2. The under conveyer and a drop chute 3. The under conveyer and the revolving elevator wheel 4. The return conveyer and a crossover chute	5-36.	When you are developing a layout of a plant, special attention must be given to creating a logical flow of material.
5-33.	The desired performance of a specific screen is obtained by taking which of the following actions?		1. True 2. False
	1. Varying the degree of inclination 2. Varying the frequency and amplitude of stroke 3. Varying the direction of throw 4. All of the above	5-37.	Which of the following materials can contaminate open stockpiles of aggregate?
			1. Windblown sand 2. Fines 3. Trash 4. All of the above
5-34.	Which of the following is NOT a factor that affects the operational efficiency of a conveyer?	5-38.	When you are building stockpiles, which of the following pieces of equipment is more efficient because it can combine lift with push to build higher piles?
	1. Speed 2. Length of travel 3. Loading 4. Incline		1. Dozer 2. Clamshell 3. Loader 4. Excavator
5-35.	What factor determines the capacity of a washing and screening plant?	5-39.	Which of the following physical characteristics should the site selected for the erection of a plant have?
	1. Water pressure 2. Speed of the dehydrator 3. Percent of sand in the deposit 4. Capacity of the scrubber		1. Flat 2. Level 3. Well compacted 4. All of the above
		5-40.	When torquing bolts and nuts on the plant, you do so by torquing the bolt head.
			1. True 2. False

5-41. Of the following basic setups for a 75-tph crushing plant, which one should be used when the bulk of material from a gravel deposit is 3 inches in diameter or less?

1. Jaw crusher
2. Primary unit only
3. Secondary unit only
4. Primary and secondary units together

5-42. The entire quarry and rock production operation depends on improper and inadequate maintenance of equipment.

1. True
2. False

Learning Objective: Recognize the properties of and uses for various types of cement that a concrete batch plant supervisor works with.

5-43. The chemical reaction between cement and water that produces concrete is known by what term?

1. Concrete
2. Hydraulics
3. Hydration
4. Evaporation

5-44. What type of cement requires less protection from freezing and attains normal 3-day strength in 1 day?

1. I
2. II
3. III
4. IV

5-45. Aggregates used in concrete occupy what percentage of the mix by weight?

1. Between 90% to 95%
2. Between 70% to 85%
3. Between 60% to 75%
4. Between 50% to 55%

5-46. Stockpiles for concrete aggregates should be built up in a cone shape.

1. True
2. False

5-47. What condition results if the slope inside an overhead charging bin is less than 50 degrees?

1. Aggregates discharge too quickly
2. The bottom aggregates absorb too much water
3. Aggregates segregate when discharged
4. Aggregates combine too thickly

5-48. What is the primary function of the water used in a concrete mix?

1. It wets the aggregates so the cement will bind
2. It starts the hardening process (hydration) of the cement
3. It makes the mix workable
4. It prevents the cement from curing too fast

5-49. When an air-entraining agent is used at a site, it is added to what element of a cement mix?

1. The aggregate for the mix
2. The concrete granules for the mix
3. The water to be used in the mix
4. The cement to be used in the mix

5-50. Which of the following materials can be used to retard the set of a concrete mix?

1. Borax
2. Sugar
3. Salt
4. Each of the above

- 5-51. A total of how many cubic yards of concrete is required for a pad 60 feet in length, by 30 feet in width, with a depth of 4 inches and a waste factor of 10 percent?
1. 24.2
 2. 22.0
 3. 59.4
 4. 65.3
- 5-52. Batching by volume provides greater accuracy and avoids problems created by the bulking of damp sand.
1. True
 2. False
- 5-53. When mixing concrete in a transit mixer, what is the maximum number of revolutions of the drum at mixing speed that you should use?
1. 60
 2. 70
 3. 90
 4. 100
- 5-54. What is the minimum agitating speed on a transit mixer?
1. 1 revolution per minute
 2. 2 revolutions per minute
 3. 3 revolutions per minute
 4. 4 revolutions per minute
- 5-55. Concrete that is kept agitated can generally be placed within what maximum time period after mixing?
1. 3 1/2 hours
 2. 2 1/2 hours
 3. 1 1/2 hours
 4. 1/2 hour
- 5-56. On a mobile concrete mixer plant, the sand and aggregate are accurately proportioned according to what measurement(s)?
1. By cubic feet of material only
 2. By cubic yards of material only
 3. By weight or by cubic feet
 4. By weight or by volume
- 5-57. You are conducting a slump test. Which of the following results indicate a poor mix?
1. The concrete mix crumbles
 2. The concrete mix segregates
 3. The concrete mix falls apart
 4. Each of the above
- 5-58. When working around cement, you should pay particular attention to any rash on your skin because a rash may indicate cement poisoning.
1. True
 2. False
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- Learning Objective: Describe the operations of an asphalt plant.
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- 5-59. On a batch plant, the size of a batch varies according to the capacity of what component?
1. The hopper
 2. The dryer
 3. The pugmill
 4. The screens
- 5-60. The proper amount of aggregates for asphalt mixes is initially controlled by a uniform flow of the aggregate through what component?
1. Cold-feed adjustment
 2. Hot-feed adjustment
 3. Cold-bin capacity
 4. Hot-bin capacity
- 5-61. The overloading of the screens with aggregate underscores a need for control of what factor?
1. Proper dryer control
 2. Proper weigh-hopper calibration
 3. Proper cold feeding
 4. Proper gradation control calibration

- 5-62. The grading of an individual cold aggregate is determined by taking what action?
1. Matching a sample of aggregate with a previous marked sample
 2. Running a sieve analysis
 3. Measuring the rate of aggregate to the fines
 4. Noting the progressive thickness of the fines
- 5-63. Which of the following factors control the time required for aggregate to pass through a dryer?
1. The cylinder speed
 2. The slope of the cylinder
 3. The length, arrangements, and number of flights
 4. All of the above
- 5-64. When aggregate particles show signs of an oily coating after leaving the dryer, you should make what adjustment?
1. Decrease the amount of fuel oil
 2. Decrease blower or draft air pressure
 3. Increase the amount of fuel oil
 4. Increase the amount of natural gas
- 5-65. What factor controls the temperature of an asphalt mix?
1. The temperature of the asphalt
 2. The temperature of the dryer
 3. The temperature of the aggregates
 4. The temperature of the pugmill
- 5-66. If not kept clean, which of the following components can be a serious cause of air pollution at an asphalt plant?
1. Screens
 2. The dryer combustion unit
 3. The dryer
 4. The hopper
- 5-67. The Jet-Pulse system is used in an asphalt plant as a method to gain what result?
1. Production of pulses of heat to keep aggregate hot
 2. Production of suction pulses to control dust
 3. Production of a pulse of pressure within a filter bag to dislodge "dust cake"
 4. A method that produces a stream of hot asphalt onto aggregates
- 5-68. What factors determine the amount of dust from the dust collector that can be returned to the plant?
1. Moisture content
 2. Degree of suspension efficiency
 3. Mix specification
 4. Separate grading of the finish mix
- 5-69. In the gradation control unit, which of the following screens is used as a scalping screen?
1. Top screen
 2. Top intermediate screen
 3. Bottom intermediate screen
 4. Bottom screen
- 5-70. As associated with the gradation control unit, what does the term "carry-over" mean?
1. Larger aggregates are misdirected to smaller aggregate bins
 2. Rejected aggregates are "carried-over" to a discharge chute
 3. Smaller aggregates are misdirected into the larger aggregate bins
 4. Improperly heated aggregates are reheated

- 5-71. Bin partitions should have which of the following properties to prevent intermingling of the aggregates within the hot bins?
1. Be tight fitting
 2. Be free of holes
 3. Be of sufficient height
 4. All of the above
- 5-72. In a continuous-flow plant, a sample of hot aggregate should be obtained from which of the following locations?
1. Scalping screens
 2. Overflow vents
 3. Feeder gates
 4. Dryer
- 5-73. What function does the vertical slot in the asphalt return line serve in asphalt heating and circulation?
1. It breaks the vacuum in the line upon reversing the pump
 2. It allows for circulation of asphalt through the feeding and storage system
 3. It prevents oxidation of the asphalt
 4. It provides a means of sampling asphalt
- 5-74. The temperature of the asphalt controls the temperature of an asphalt and aggregate mixture.
1. True
 2. False
- 5-75. As part of an asphalt mix design, what is the purpose of the mineral filler?
1. To increase the weight of intermediate aggregate
 2. To decrease the curing time of the asphalt mix
 3. To increase the workability of the asphalt mix
 4. To fill in the voids of the aggregates